



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Makoto IIDA

Group Art Unit: 1792

Application No.: 10/586,476

Examiner: G. RAO

Filed: July 18, 2006

Docket No.: 128768

For: A METHOD FOR PRODUCING SEMICONDUCTOR WAFERS AND A SYSTEM
FOR DETERMINING A CUT POSITION IN A SEMICONDUCTOR INGOT

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This request is being filed with a Notice of Appeal and Petition for Extension of Time. Review of the October 27, 2009, Final Rejection is requested for the reasons set forth in the attached five or fewer sheets.

Should any questions arise regarding this submission, or the Review Panel believe that anything further would be desirable in order to place this application in even better condition for allowance, the Review Panel is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

William P. Berridge
Registration No. 30,024

Kevin R. Gualano
Registration No. 64,888

WPB:KRG/nlp

Date: February 25, 2010

OLIFF & BERRIDGE, PLC
P.O. Box 320850
Alexandria, Virginia 22320-4850
Telephone: (703) 836-6400

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REMARKS

Claims 9-26 are pending in this Application. The Office Action rejects claims 9-26 under 35 U.S.C. §103(a) over JP-A-2002-174593 (Kiyoshi) in view of JP-A-11-278983 (Kenji). This rejection is respectfully traversed.

Kiyoshi and Kenji would not have rendered obvious the combination of features recited in claim 9, including "a position at which the oxygen concentration is maximum or minimum, in a range of a predetermined length of the semiconductor ingot, is determined as a cut position according to measurement results" and "the ingot is cut in a perpendicular position to the growth axis at the cut position into blocks each having the oxygen concentration being maximum at one end thereof and the oxygen concentration being minimum at the other end thereof."

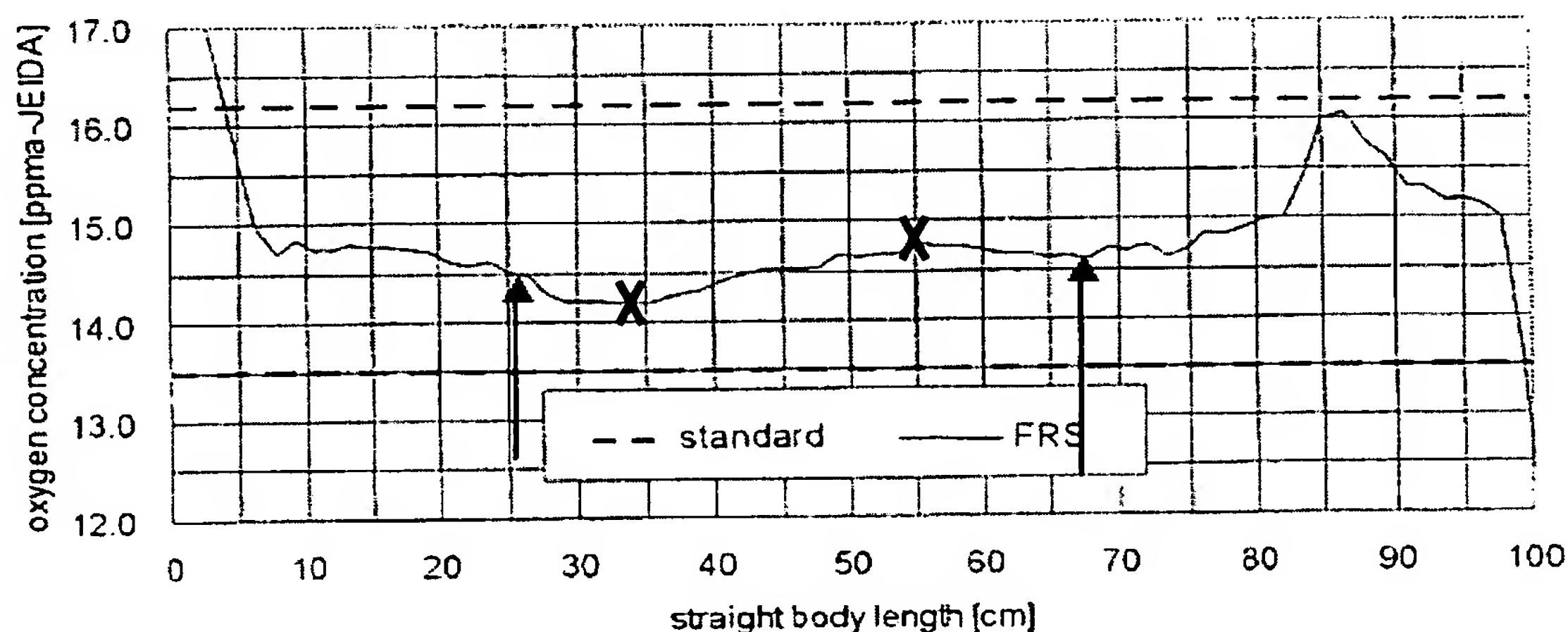
The February 1, 2010, Advisory Action alleges that "the claimed subject matter is open to interpretation given the cut position is at either a maximum or minimum point" (Advisory Action). The Advisory Action further alleges that "the concentrations [of a Cz single crystal ingot] tend to linearly and concentrically pool down the length of the ingot as it is pulled from the melt" (Advisory Action). However, neither the Advisory Action nor the October 27, 2009, Office Action provide evidence to support the allegation that the oxygen concentration linearly pools down the length of an ingot. Conversely, the record clearly establishes that the oxygen concentration does not linearly pool down the length of the ingot.

As asserted in the January 22, 2010, Request for Reconsideration After Final Rejection, Kiyoshi explicitly discloses that local oxygen concentrations within a single crystal ingot fluctuate along the length of the ingot (Kiyoshi, paragraph [0009] (discussing the fluctuation of local oxygen density in a single crystal ingot)). Further, the current application illustrates, in Figs. 2-4, that the oxygen concentration along the length of a single crystal ingot

fluctuates at least because the oxygen concentrations versus ingot lengths in the drawing are not linear.

As established by the evidence of record, oxygen concentration is not a linear function of the length of the single crystal ingot. Because the oxygen concentration is not a linear function of the length, simply cutting the single crystal ingot at any position that falls within a predetermined oxygen concentration range does not disclose that the cut position is a maximum or minimum oxygen concentration in a range of a predetermined length of the ingot.

This is clearly illustrated in the below annotated reproduction of Fig. 2 of the present application.



If the area between the dashed lines represents the predetermined range of the oxygen concentration, both arrows point to oxygen concentrations that are within the predetermined range. However, neither arrow points to an oxygen concentration that is a maximum or minimum. Thus, the resulting block cut from the two points does not have a maximum oxygen concentration being a maximum at one end and a minimum at the other end. Instead, the maximum and minimum concentrations are approximately at the two points indicated by the "X"s. Therefore, merely disclosing cutting an ingot at points that fall within a predetermined range would not have rendered obvious the above-recited features of claim 9.

Kiyoshi and Kenji merely disclose determining cut points based on whether the points fall within a predetermined range. Specifically, Kiyoshi discloses that a single crystal ingot is cut into blocks that have a predetermined oxygen density based on obtained oxygen density values (paragraph [0007]). Yet, Kiyoshi fails to disclose that the cut points are maximum or minimum oxygen concentrations for a range of a predetermined length of the ingot. Kiyoshi merely discloses that the resulting cut ingot has an oxygen density that is within a predetermined length along the length. Kenji fails to cure Kiyoshi's deficiency because Kenji merely discloses cutting single crystal ingot blocks that meet certain oxygen concentration ranges into wafers and that more than one variety of products can be cut from a single crystal (Kenji, paragraphs [0007]-[0008]).

Based on the foregoing, Kiyoshi and Kenji, either alone or in combination, would not have rendered obvious the combination of features recited in claim 9, including the above-recited features. Claims 10-26 would also not have been rendered obvious by the applied references for at least the same reasons, as well as for the additional features the claims recite.

Accordingly, withdrawal of the rejection is respectfully requested.

Applicants respectfully submit, therefore, that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 9-26 are earnestly solicited.